15. (amended) The method for manufacturing a carbonaceous complex structure according to claim 14 wherein

a first electrode, said carbonaceous thin film, said fullerene thin film and a second electrode are layered in this order on said substrate.

17. (amended) The method for manufacturing a carbonaceous complex structure according to claim 12 further comprising the step of

layering a pair of spaced apart electrodes on said carbonaceous thin film such that said fullerene thin film is formed at least in the space between said electrodes.

20. (amended) The method for manufacturing a carbonaceous complex structure according to claim 19 wherein the fullerene polymerization method is a plasma polymerization method, a micro-wave polymerization method, an electrolytic polymerization method, an electron beam polymerization method, an X-ray polymerization method or a photopolymerization method.

21. (amended) The method for manufacturing a carbonaceous complex structure according to claim 12 wherein

said fullerene thin film is formed by vapor deposition of fullerene molecules to form a vapor-deposited film and then illuminating said film of fullerene molecules by electromagnetic waves to polymerize said fullerene molecules.

22. (amended) The method for manufacturing a carbonaceous complex structure according to claim 21 wherein

the film thickness of said vapor-deposited film is measured and controlled.

23. (amended) The method for manufacturing a carbonaceous complex structure according to claim 22 wherein

said film thickness is measured by a film thickness meter arranged in a vacuum chamber.